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Seasonable Work Among the Trees.

IT is not safe, as a rule, to plant trees as far north as the latitude of New York after this date. When young trees are planted in early autumn while the ground is warm they will be encouraged to throw out new roots to furnish them with the needed supply of moisture through winter. If the ground is firmly settled they may not be heaved by the frost; if they are properly staked and tied their roots will not be loosened as the tree is swayed by winter winds, and they will be ready to start into vigorous growth in the spring. After this time, however, when the ground is cold, fresh rootlets are slow to start, and a newly planted tree is in danger. But, although it is too late for the safest planting, this is just the time of year to study planting plans and to decide where each tree is to be set and what tree is to be set there. If nursery stock is now selected and ordered, trees received before the ground freezes hard can be heeled in carefully where no water can collect about the roots, or, still better, if such facilities are available, they can be wintered in a cold pit or cellar. Where the ground has not already been prepared for the trees, large holes should be dug at once and filled in with good soil, and this will settle compactly in the winter and be in much better condition for planting than if it were loose and open after being freshly dug. After the position of each tree has been decided upon and the ground prepared beforehand, the mere planting is a comparatively short and easy operation, and everything that is done now in the way of preparation will help to relieve the pressure of work in the spring. This is a great advantage in our northern states, where only a few days of good weather intervene between winter and summer—days which are always crowded with work of every sort.

But, beyond preparing for next spring's planting, these autumn days are the best of the year to study plantations already made, with a view to determine which trees shall be removed and how the remainder shall be pruned. It is easy now, just after the leaves have fallen, to observe how the individual trees of a group are affecting one another. When real winter weather comes it is much more difficult to make a sufficiently careful examination and to decide which ones should be cut down because they are interfering with their neighbors, and to see where there are any limbs of those which remain that ought to be shortened. It is a good time, too, to inspect young trees and prune them so that they can be kept properly shaped and balanced. There is an unfortunate prejudice against pruning trees as an unnatural process, but this conservative surgery, which is only meant to force the young trees into taking their normal form, is quite different from what is called "clipping them into shape," as is sometimes practiced with conifers and is almost always to be deprecated.

The thinning out of plantations, however, and not the pruning of trees, is the work requiring the most intelligence and determination. Many people have such a sentimental or superstitious feeling toward trees that they will allow them to stand even where not only their own health and symmetry are sacrificed, but where they imperil the health and symmetry of much more important trees. Light, air and space for development are absolute essentials if we are to have fine specimens. In a forest we take care to have the trees stand so closely that they will be forced up into long straight stems, for only such will make valuable timber; but for ornamental trees the requirements are entirely different. Not one of a group of trees when too closely massed can become a fine specimen which will live to a vigorous old age. Of course, no hard-and-fast rule for thinning can be made which will cover all cases, for the varied wants of each different species must be provided for. A Fir, or a Spruce, with its lower branches lost is an unsightly object, but in a group of White Pines the naked trunks have a nobility of their own. Some of our Oaks, especially the White Oak, make a beautiful mass, and no inconsiderable portion of this beauty is found in the tall, sturdy, bare trunks of the trees with their ash-colored bark, while the same tree as a single specimen is much more impressive when it has low, wide-spreading, horizontal branches. It requires as much judgment, therefore, to cut a tree as to plant one, and it can only be properly done by a person who is well acquainted with the characteristics of each species and has a clear idea of the ultimate effect which he aims at. This is the best time of the year for a critical examination of trees and for deciding which ones are to remain and which ones ought to be felled, and just as soon as the time comes for removing one there should be no delay. In a few years the damage will be beyond repair, for after a tree has been forced out of shape by its intruding neighbors it will remain unshapely ever after.

Fortunately, there are obvious cases in which no remarkable knowledge or judgment is necessary. Wherever a good tree is cramped or marred by an inferior one, or wherever a tree which will become a noble one if it only has the chance is hindered from attaining its best estate by another of less value, there should be no hesitation or unwillingness to use the axe. Very often the superintendents of public parks who do their duty in this respect are assailed with popular clamor by short-sighted people who are horrified to see the destruction of anything like a tree. This outcry is often so serious that to escape it officers who know better leave the trees in park-plantations to crowd and starve each other until they become objects of commiseration; whereas, if they had been thinned in time with serious purpose, the remaining ones would continue to be objects of the highest civic pride for generations to come.

All this is but the simplest elementary teaching. It is what has been said over and over again year after year, and yet we fear it will need to be repeated for years to come before people are educated up to the point where they will look at a badly placed tree as a weed which ought to be exterminated as pitilessly as any other weed. There is not one of the older parks in this country which does not show examples of stunted and half-dead trees which, with proper care, might have been full of sap and vigor and endowed with the power to gain fresh beauty and increased dignity for centuries. There are few proprietors of large places who cannot now make a personal inspection of

their trees to advantage, and few such estates where the axe ought not to be wielded with promptness and vigor. We are quite sure that every one who fells a tree intelligently this autumn will feel assured a year hence that this work was quite as commendable as the intelligent planting of a tree.

The effect of frost upon the leaves of trees and shrubs varies with different species. The leaves of some of our native trees which turn most brilliantly, like those of the Scarlet Maple and the Tupelo, mostly take on their autumn colors and fall before hard frost; and on many species of plants the leaves are killed outright or greatly disfigured by the first real freeze; on others they retain their beauty after many nights of real freezing. The leaves of the Japanese Maples, which assume late in the season very brilliant shades of scarlet, are susceptible to frost, and in some parts of the country were killed this year before they had time to change. Parrotia Persica, a small shrubby tree of western Asia, of the family of our Witch Hazel, bears leaves which frost does not seem to affect, and in the middle of November are now bright orange color, and just beginning to turn scarlet. This late appearance of such brilliant color reminds us how long the period is over which this distinctive beauty of the autumn season in America extends. It was two months ago when we began to make notes of the bright scarlet which even then had begun to kindle in the foliage of the Tupelo, and every week since then we have tried to characterize as well as we might the colors of different shrubs and trees as their leaves were turning. In the Plant Notes for this week two or three other shrubs and trees are mentioned for their special value at this season, and in future numbers of the paper we shall invite attention to additional examples of this character.

The splendors of our woods in autumn are often celebrated, but almost invariably the glory is characterized as transitory. While it is true that in large masses of woods there is a climax when for a few days a great number of trees come to their brightest all at once and then seem to burn out suddenly; nevertheless, if we note individual trees and the effects of changing leaves not only on woody plants, but on the very herbage of the fields, there are fully two months during which this singular beauty of ripening foliage appeals to us on every side. It is well, therefore, to remember that the autumnal beauty of our landscapes is not a fleeting transformation scene, but a great panorama in which splendor follows splendor in long procession.

The New York Cut Flower Company.—II.

GROWERS who aim to get the best flowers to market in the best condition place their stems in water as soon as they are cut. They are kept in a cool dark underground room, subcellars being used in many establishments which make a specialty of growing for market. Thus filled with water they will stand up longer and not wilt so quickly from loss of moisture by evaporation. This method of cooling is considered better than using ice, as the flowers keep better when not subjected to violent change of temperature from a refrigerator to an express car. They are usually cut when the temperature of the houses is not extremely high, morning being preferred to evening, since such flowers as roses are softer after hours of exposure to bright sunlight, and ripen during the night. In summer as little time as possible is lost in getting the flowers into market, while in cooler weather some are improved if kept twelve to twenty-four hours before being packed for shipment. Long shallow wooden boxes are smoothly lined with newspaper, above which sheets of thin oil-paper are laid. The heads are usually placed at each end of the box, and in the case of very large chrysanthemums there are but one or two rows of blossoms, the stems being tied to the bottom of the box with raffia to hold them in place. Roses are carefully laid in successive rows, an equal number at each end, and smaller stock, as mignonette and lily-of-the-valley, in one direction, in even beds of bloom. The boxes are carefully strapped and sent by express. The companies allow special net rates and return the empty boxes without charge. At such stations as Madison, New Jersey, where floriculture is largely carried on, an extra car is provided specially for cut flowers.

Upon arrival at the railroad station in New York the boxes are quickly transferred to wagons and driven to the Twenty-fourth Street entrance of the Cut Flower Company, where they are lifted to the receiving-room on an immense elevator. Here they are at once opened, examined by an expert and graded according to established rules. Roses, for example, are classed as fancy, extra, first, second and third. American Beauty and American Belle are the only varieties which enter into the fancy class, a requisite being stems twenty-four inches and over. In the class known as extra, stems sixteen to twenty-four inches are specified for the same varieties, and for other varieties eighteen inches and over. Stems ten to sixteen inches long are required for first-class flowers of these two larger sorts, six to ten inches for second class, and less than six inches for third. In the same classes for all other roses the conditions for stems are twelve to eighteen inches, seven to twelve inches and less than seven inches. From these general classifications for roses other than American Beauty and American Belle, there are special rules for particular varieties. The smaller-growing sorts, as Niphetos, Papa Gontier and Souvenir de Wootton, for instance, have a standard for shorter stems than such roses as Belle Siebrecht and Perle des Jardins, while yet longer stems are required for Bride, etc. But length of stem is by no means all that is required. Roses to be classed in the higher grades, must have large, well-formed buds of good substance, clear bright color, and be free from blemish; the stems be straight and stiff, and the foliage luxuriant and clean. An off-color Meteor rose, good in all other respects, would go into class three. If some specially fine flowers are received, which plainly rank above the regular classes, special prices are readily paid for them by dealers who are always ready to take choice stock. The best flowers always sell quickly, and there is never a surplus. Glut and consequent loss always occur in the lower grades.

Prices are revised at the beginning of each week, and changed when necessary, but this has only occurred four times since September 1st. After the grading is done a slip with the quantity and quality noted is placed to the credit of the shipper, and the stock is placed in a refrigerator kept at forty-five degrees, or at once exposed for sale in the large adjoining room. There are always standing orders from retail dealers, even in advance of their personal visits, for stock from day to day. One large table is used solely for the filling of advance orders. It is laid off in sections assigned to the best regular buyers, the spaces designated by a permanent card bearing the buyer's name, and stone jars hold the stock until the buyer comes for it. Not until after the regular store trade is supplied are sales made to the street venders. Some of these are Americans, not a few of them women of ability and character. The majority are, however, Greeks, shrewd buyers, and sellers, too, and good manipulators, as an observing grower declared. These Greeks are born merchants, many of them men of wealth. Although they have occasional sharp rivalries which are sufficiently bitter to suggest the possible use of the stiletto, they shrewdly combine to get the good out of any exceptional market condition. They are scattered all over the city and rent many spaces inside the sidewalk line on busy thoroughfares, besides stands in other public places.

Special demands are made for notable weddings and for festal days, as Christmas and Easter. Last week one order embraced 4,000 carnations, 14,000 chrysanthemums, 10,000 roses, 400 strings of smilax and as many more of asparagus, 4,500 sprays of lily-of-the-valley, 2,000 Bermuda lilies and 100 cattleyas, and half as many again were bought

from other sources for use on the same occasion. Of course, this was apart from the forest of Palms and other decorative plants in pots. In preparation for supplying unusually large quantities at one time the development of some flowers is retarded in the hot-houses, and that of others is hurried forward.

The loss on unsold flowers is equitably divided pro rata among consignors in the class in which it occurs. Quality is in no small degree determined by weather, soft and mussy stock coming in after muggy days. General high quality of the great masses of flowers seen here is remarkable, as is also their freshness. A much higher grade is demanded now by retail buyers than a half dozen years ago, and flowers sold on the streets are especially of better quality during the past three or four years. The choicest varieties and newest sorts are offered here, and fragrant blossoms are always in special request.

The first buyers come as early as seven o'clock in the morning. Flowers looking dewy and fresh have already been taken from the largest refrigerators used for this sort of storage in the country and displayed in the salesroom, and others continue to arrive. Of carnations, from 5,000 to 25,000 are handled in one day, as many more violets and lily-of-the-valley, and 40,000 roses. At six o'clock in the evening the receiving and selling is over, and the storing of the freshest flowers still unsold concludes the work of the day. It is pleasant to record the fact that any flowers left over are presented to the hospitals.

New York. *M. B. C.*

A New Hybrid Oak in the Indian Territory.

WHILE collecting along a little rocky branch a mile south-west of Sapulpa, Indian Territory, on September 20th, I was led to observe more closely the Texas Red Oak, Quercus Texana, on account of its occurrence in such large numbers, and while doing this I came upon an Oak plainly different from that species, and which I thought to be a hybrid. After a careful study of it and the surrounding trees, I became satisfied that it was a hybrid between the Black Jack Oak and the Black Oak. It may be briefly described as Q. Marilandica × velutina, n. hyb.: a tall, slender tree, scarcely resembling either Q. Marilandica or Q. velutina in general appearance, but more like the latter; trunk and branches exactly like those of Q. Marilandica, but twigs and branchlets like those of Q. velutina; buds nearly like those of Q. velutina, but larger; leaves broader at the upper end and tapering to a narrow, sometimes cordate base, three to five lobed; lobing very various, some like Q. Marilandica and some like Q. velutina, all shortly bristle tipped; upper surface of leaves as in Q. Marilandica, but lower surface nearly like that in Q. velutina, but somewhat rusty-downy; petioles slender, nearly smooth and averaging about one inch in length; acorns long and slender-pointed, very rusty-downy when young, but nearly smooth when mature, striped with alternating lines of black and yellow, as in Q. Marilandica; cup top-shaped, with a scaly edge, longer than that of either Q. Marilandica or Q. velutina, but approaching the latter more nearly. One tree only, sixty feet in height, with a trunk about fifteen inches in diameter, and growing in a rocky hollow where Q. Texana is abundant, and Q. Marilandica, Q. minor and Q. velutina are common.

Independence, Mo. *B. F. Bush.*

The Names of some North American Tree Willows.

SALIX LONGIFOLIA, Muehlenberg (*Neue Schrift. Gesell Nat. Fr.*, Berlin, iv., 238, t. 6, f. 6), was published in 1803. In 1778 Lamarck had published in his *Fl. Franç.* (ii., 232) a Salix longifolia to which he referred the Salix viminalis of Linnæus, and the next oldest name of Muehlenberg's plant, Salix fluviatalis of Nuttall (*Sylva*, i., 73), published in 1842, must be adopted.

Salix rostrata, Richardson (*Arctic Exped.*, 753), was published in 1823. In 1799 Thuillier had published in the second edition of his *Flore des Environs de Paris* a Salix rostrata now referred to Salix repens of Linnæus. Asa Gray in 1867 (*Man.*, ed. 5, 564) called the Beaked Willow Salix livida, var. occidentalis. The name occidentalis had been used for a West Indian species by Koch in 1828, and four other varietal names, latifolia, lanata, obovata and lanceolata, given to it by Andersson, had all been previously employed in this genus. This common, familiar and widely distributed tree being, therefore, deprived by the rules established by American botanists of any name at all, I am glad to associate with it that of Mr. S. B. Bebb, of Illinois, the learned, industrious and distinguished salicologist of the United States, to whom, more than to any one else of this generation, we owe our knowledge of American Willows, and to call it Salix Bebbiana.

Salix flavescens, Nuttall (*Sylva*, i., 65), was published in 1842. In 1828 Host published in his *Salix* (31, t. 101) a Salix flavescens now referred to Salix Arbuscula, Linnæus, and this name being thus unavailable for the Rocky Mountain tree, I propose to call it Salix Nuttallii in honor of Thomas Nuttall, who discovered and first described it. The variety Salix flavescens, var. capreoides, Bebb (Garden and Forest, viii., 373), thus becomes Salix Nuttallii, var. capreoides.

A large-leaved form of Salix lasiandra discovered by Dr. David Lyall in 1859 on the lower Fraser River was first described by Andersson (*Sal. Monog.*, 34, f. 23) as Salix lancifolia, and in 1868 (De Candolle, *Prodr.*, xvi., pt. ii., 205) as Salix lucida, β macrophylla. This specific and varietal name having been previously used in Salix, I propose for this variety the name of its discoverer, and call it Salix lasiandra, var. Lyallii. *C. S. S.*

Plant Notes.

Cratægus apiifolia.—This is a small tree, with delicate, nearly circular, deeply cleft and divided leaves, of the southern states, where it is mostly confined to the coast region, although west of the Mississippi River it ranges inland to central Arkansas. Plants raised from seed gathered near Little Rock, Arkansas, have produced plants which have proved fairly hardy in the Arnold Arboretum, although they have not flowered there yet. The Parsley Haw, as Cratægus apiifolia is often called, is one of the most delicate and beautiful species of the whole genus, and in the Arboretum this autumn it has been specially noticeable for the brilliant deep red color assumed by some of the leaves, while others on the same branch remain unchanged in color. Quite uninjured by frost, the leaves were in their greatest beauty last week.

Rosa setigera.—The beautiful Prairie Rose should receive another word of praise for the colors it takes on late in the autumn, when the long arching stems turn dark purple and are coated with a glaucous bloom, and the leaves are brilliant orange and scarlet. It is one of the most valuable of all shrubs, and many people think the most beautiful Rose. Its merit as an ornamental plant has often been pointed out in these columns, but we venture to remind our readers of its hardiness and vigor, the rapidness of its growth, its graceful habit, and its many clusters of large pure pink flowers, which open later than those of most single-flowered Roses. The Prairie Rose has been largely used with good effect in some of the Boston parks, in which it flowered freely this year, and its beauty was a revelation to the public. This, perhaps, will lead to a more general use of this delightful plant.

Leucothoë racemosa.—The most brilliant plant we know, however, in the middle of November in the northern states, is Leucothoë racemosa, a common shrub in moist thickets in the neighborhood of the Atlantic and Gulf coasts of North America, from Massachusetts southward. This is just now the most conspicuous shrub in the Arnold Arboretum, in Boston, where it has been planted in large numbers, and an object of great beauty, with flaming scarlet leaves which

hard frost has not disfigured. L. racemosa sometimes grows to the height of ten feet, with rather stout erect stems, oblong acute leaves and erect racemes of small Heath-like flowers. In cultivation it enjoys rich, rather moist soil and grows rapidly into a broad bush. Few plants surpass in brilliancy of autumn color this familiar inhabitant of our swamp-borders, or bear leaves that are so resistant to cold; it is easy to raise and to cultivate, and it is a plant we should suppose that every one who desires to enjoy a garden in November here would want in large numbers. But in how many nurseries in this country can this shrub and scores of other desirable native plants be found? Many people would be glad to use such plants if they could buy them, but improvement in the character of nursery stock obtainable in this country does not proceed rapidly, although it is now possible to buy many more native trees and shrubs than it was ten years ago, and in American parks American plants are beginning to replace the foreign species which before that time were the planters' only resource.

Hymenocallis Carribæum.—This exquisite plant is often met with in gardens under the name of Pancratium Carribæum. It is a remarkably beautiful species, native of the West Indian Islands and southern Florida. In some respects it resembles Hymenocallis speciosum, but the flowers are very much larger, measuring over eight inches across. The tube of the flower is very slender, four or five inches long; segments equally long, linear-lanceolate, half an inch or less wide, spreading. Between the long thread-like stamens there is a large cup-shaped corona of membraneous texture. The scape is about eighteen inches high, stout, erect, supporting an umbel of from eight to twelve flowers. Bracts large, ovate-oblong, greenish white. Leaves about two feet long, three to four inches wide, oblique, lanceolate, of a deep shining green. The bulbs should be buried below the surface of the soil. Rich fibrous loam is the best. A good drainage is necessary. The plant sometimes flowers several times in a season, and the snowy-white flowers are very fragrant.

Pteris Cretica Owrardii.—This is a large and robust variety of an old well-known Fern. It differs little from the type, except in its more solid texture and larger growth, and in its clean-cut, well-developed foliage. While Pteris Cretica frequently becomes disfigured by black transverse spots in the leaves during moist and dull weather or through cold and overwatering, the variety is more able to resist decay through its more solid texture. It is, therefore, more valuable for all purposes, and will probably in time replace the species as a commercial decorative plant. It can be raised from spores as easily as the old kind and will do well under the same conditions—that is, a temperature of about sixty degrees, in rich, fibrous soil and a light position. As a house plant nothing can be more graceful and ornamental, and for this purpose it should be grown in small vases or ornamental pots. With moderate care it will do well in a not too dry or overheated atmosphere.

Oncidium Forbesii.—Although Orchids are becoming popular and common in the eastern states, this beautiful species is rarely seen. It is one of the finest of a large and interesting genus and nearly related to Oncidium crispum, which, however, is less showy. The flowers measure about two inches across in well-grown plants. The petals have wavy, bright yellow edges, the rest being of a rich, reddish-chestnut color. They are produced in few-flowered nodding racemes on rather long peduncles from the base of the flat-furrowed pseudo-bulbs. The leaves are long, lanceolate, of a leathery texture and dark green color. This is a Brazilian mountain species, and should be grown in moderate heat in a Cattleya-house. It thrives best in a light and partially sunny position, and, like most Oncidiums, it requires a thorough rest in winter and plenty of moisture during the growing season. It blooms during October or November, and the flowers remain beautiful for a considerable time. Blocks of wood or small baskets are most suitable for this species.

New or Little-known Plants.

Chrysanthemum, William Simpson.

THIS new variety has been exhibited nowhere except at the recent Philadelphia flower show, where it took the silver medal for the best American seedling Chrysanthemum not yet disseminated, besides a certificate of merit and the first premium for six blooms of the best pink seedling. On a scale of one hundred points when it was judged by the Chrysanthemum Society of America, the committee, consisting of such careful judges as Edwin Lonsdale, Robert Craig and William K. Harris, gave it eighty-six points out of a possible hundred and reported that in their estimation it was a great acquisition among early pink sorts. It belongs to the Japanese incurved type, with the centre entirely hidden, but there are several of the lower rows of petals somewhat reflexed, a character not plainly seen in the specimen figured on page 465. It is more like Mrs. E. G. Hill than any other variety, though it is a much deeper flower. In color it is a pleasing shade of pink, rather brighter than that of Maud Dean. The flowers are very durable, those that were judged on the fifth of November in Philadelphia having been cut on the 26th of October and kept in a cool cellar. The plant is a strong and healthy one, growing from four to five feet high. The flowers this year were all grown on terminal buds, but the best judges think that they would be improved by growing them from lateral buds. The strong points in favor of this flower are its earliness and its size. This year all Chrysanthemums were late, but last year this variety was fit to cut on the 15th of October. Some of the flowers judged by the committee of the Chrysanthemum Society measured more than ten inches across, and one of them was eleven inches in diameter. The plant was raised by Mr. Joseph Heacock, of Wyncote, Pennsylvania, from seed gathered in the autumn of 1893 from his own plants, but no record of its parentage was kept.

Cultural Department.

A Few Hardy Plants.

THE Clematises belonging to the group with tubular flowers are interesting and distinct, although some of them are not very showy. The summer-flowering kinds, such as Clematis tubulosa and C. Davidiana, are pretty well known in gardens, but there are one or two autumn-flowering sorts which are seldom seen. C. Lavallei, a plant belonging to this group, which comes from China, attracted a good deal of attention here when in bloom this fall. It is a showy plant and has very sweet-scented flowers. It attains a height of four or five feet, and its stout grooved stems are thickly covered with broad trifoliate leaves. The leaflets are roundish, ovate, and are deeply toothed or somewhat lobed. The tubular whitish flowers are produced abundantly in large loose leafless panicles, which stand well above the foliage of the plant. The flowers begin to open about the first week in September and last in good condition for several weeks. A deep rich soil and a partially shaded position suits the plants well, and under those conditions they grow vigorously. The largest stems are slightly woody at the base, but they are cut down every winter even with the ground, and the flowers are produced on the young stems. In the border the plants require to be tied up loosely to a stout stake; but if they are in a position where they have plenty of room, the stems may be left loosely on the ground, where the panicles make a pleasing effect.

Another good Clematis belonging to this same group is a plant which is found in gardens under the name of C. Stans. Although the plant has the habit of C. Stans, yet it looks very different from the plant which is figured in *The Botanical Magazine* under that name. It compares very favorably with specimens of C. Savatieri, Dene., which are in the Gray Herbarium, another Chinese plant. This plant grows from two to three feet high and has trifoliate leaves, and the whitish tubular flowers are in terminal panicles. It has a good habit and makes an excellent border plant, coming to flower a week later than C. Lavallei. An open position and a good deep rich soil are its requirements. Both of the above plants are quite

Fig. 64.—Chrysanthemum, William Simpson.—See page 464.

hardy here, standing our most severe winters without any protection.

There are very few plants in the garden that blossom for such a length of time as Phlox maculata. The plants here began to bloom early in July, and they are still producing flowers up till this date, November 12th. It is strange that so pleasing a plant is so rarely cultivated now in gardens. Indeed, there are very few of the improved varieties of this species or of P. paniculata that are as pleasing and effective as this typical plant. This Phlox grows about two feet high, and the stems are slightly spotted with purple. The leaves are smooth, the lower ones lanceolate and the upper ones nearly ovate-lanceolate from a cordate base. The flowers are of a pink-purplish color and are produced in long narrow panicles. The plants

do best in a cool, slightly shaded position and moderately rich soil. This plant is found in rich woodlands and along streams from northern Pennsylvania to Iowa and Florida.

Botanic Garden, Harvard University. *Robert Cameron.*

[Phlox maculata is easily established and often escapes from cultivation. See also Garden and Forest, vol. v., p. 156.—Ed.]

Chrysanthemums at Cornell University.

THE test of new varieties of Chrysanthemums now progressing at the forcing-houses under the direction of Professor Bailey, seems to show that the new varieties of 1895 are, on the whole, not equal to those of 1894. The most conspicuous exception is the pure white Mrs. Henry Robinson (Pitcher & Manda), which is so much better than all the rest that it deserves the highest mention. It is early, very large and full, and very striking in general effect. It is the unmistakable hit of the season among the many visitors. Of the many other pure white varieties, Crystalina (Vaughan) should be singled out for its individuality. It is of medium size, but very distinct in shape and color, and agreeably suggests some old-fashioned Poppies.

Of the pink sorts, the much discussed Mrs. M. R. Parker, Jr. (Spaulding), is an early dwarf variety, which, unfortunately, shows too much centre to become popular, unless florists cut the blossoms before the centre becomes visible. The florets are quite tubular, and the plant is a distinct gain in uniformity of color in its class, although it cannot compare with Mrs. E. G. Hill for size of blossom or delicacy of shade. With the exception of Mrs. Higginbotham (Spaulding), an enormous hairy Japanese, with wide incurving and cupping florets, the new pink kinds are all disappointing.

Among the many yellow-flowered sorts there are no types sufficiently distinct to be classed among what are called sensational plants, though there are some welcome additions to well-known types of this highly specialized division. Of the pure yellow kinds, Mrs. W. H. Rand (Vaughan) is, perhaps, the best. The head is wide, flat and sprawling; the florets narrow, quilled and irregularly twisted. The prize-winning Philadelphia (Graham), which has done well in England, is an addition to the type of lemon-colored, globular-shaped, blossoms in which the florets are wide and incurving. One of our two specimens is doing poorly. Other successful pure yellows are Miss M. M. Johnson (E. G. Hill & Co.), an early dwarf, deep in color, like that of W. H. Lincoln; florets wide, but not coarse; Dr. Callendreau, tall, and of that creamy color that one associates with a successful "candy-pull." The stem is forty-eight inches high. That of Miss Georgiana Pitcher (Pitcher & Manda) is forty inches, although advertised as a dwarf variety. These two are similar in size and form, both having wide and gracefully incurving florets, but the latter has a deep rich color. The mixtures of yellow and rose are all unsuccessful. The new bronzes are also disappointing. There are slight gains, but no marked improvements, in the dark red or cardinal colors, of which G. W. Childs and Cullingfordii are well-known examples.

The season is characterized by a large proportion of freaks and oddities. Of this class the English importation, Rider Haggard, a pink Anemone with a stem sixty-two inches high and a flower nine inches across, is the most striking example. Less conspicuous, but even more eccentric, is the French novelty, Monsieur Georges Biron (Calvat). Our single specimen is strangely whorled to the left, counter clockwise, reminding one in its general effect of Vedder's illustrations of Omar Khayam. The tightly whorled portion shows the reverse side of the florets, of an anomalous old-gold hue, which contrasts curiously with the maroon of the lower florets. These lower florets radiate from the lower surface of the flattened sphere, as if shot out tangentially into space by a revolving body. The sense of motion is very strong. Equally noticeable is the indescribable color of Miss Helyett, a unique effort, which has at any rate the qualities of intensity and uniformity of color. Few will pass it by without comment, and everybody may be expected to take sides. W. W. Astor attracts comment from its singularity. It has many merits, and is a valuable contribution to the somewhat neglected Anemone-flowered type. Sunrise (May) is boldly and happily named. Among the many absurd names of Chrysanthemums this is a refreshing effort of imagination. It is a towering plant and striking flower, and emerges into even greater prominence under the white electric light. It is too early yet to formulate the results of the electric light upon the growing of this year's Chrysanthemums.

Ithaca, N. Y. *Wilhelm Miller.*

Notes on Palms.

Phœnix Rœbelenii.—This rare and beautiful Palm (see Garden and Forest, vol. iii., p. 273) is the smallest known species of the genus, with very fine and graceful foliage almost as narrow as that of Cocos Weddelliana, but more graceful. The long, spreading leaves are soft in texture and absolutely free from spines. The pinnæ measure about six inches in length, and are linear-lanceolate in outline, of a bright shining green color, and slightly puberulent. The stem is only two or three inches in diameter, very rough, seldom straight. The habit is bushy; side shoots form freely at the base of the stem, making wide-spreading plants, generally more broad than high. This handsome Palm will probably remain very rare as long as no seeds can be obtained. At present the only possible way of propagation is by means of division, which will never give a large supply of salable plants. If seeds could be had this Palm would undoubtedly become very popular, as it is easier of culture than Cocos Weddelliana, and of an altogether different habit. It keeps free from insects and thrives well in moderate heat.

Bactris major.—Nature has rarely provided a more formidable protection for any plant than the exceedingly fine and sharp spines that cover the leaf-stalks and stems of some of our most beautiful Palms. This species is one of this kind, a graceful and beautiful Palm, with irregularly pinnate leaves, from three to six feet in length, with linear-lanceolate pinnæ, of which those at the apex of the leaf are the broadest and largest. The rhachis is slender, with long black nudel-shaped spines, which cover the plant from the base of the stem to the end of the midribs. This Palm is one of the semi-scandent kinds and will thrive well in a soil composed of equal parts of fibrous loam, leaf-mold, decayed manure and sand. It requires considerable heat and moisture for rapid development and should be kept in the warmest available place. Side-shoots are produced freely, and this is the only means of propagation in a greenhouse, as seeds cannot be easily obtained.

Geonoma acaulis.—This pretty dwarf Palm is very sturdy and compact in habit, forming suckers from the base of the short fleshy stems, making large masses of handsome foliage. The leaves are of the pinnate type, but they are hardly ever divided except at the apex, where the blade is split open down to the end of the midrib. The petiole is considerably shorter than the blade, which is almost horizontally spreading and of a yellowish green color and faintly tinted red when young. The stem throws out fleshy roots below the leaves and numerous side-shoots by which the plant is propagated. The Geonomas are tropical woodland plants, growing in deep shade in loose and rich vegetable soil. Under cultivation they thrive in a compost of equal parts rich fibrous loam, leaf-mold and sand. A shady position, moderate watering and about seventy degrees of heat is sufficient during the winter months.

Licuala grandis.—This is the most popular of the newer Palms, and it bids fair to supplant Livistona Sinensis itself to a certain degree. It undoubtedly possesses many good qualities as an ornamental plant—a neat habit, convenient size, pleasing form and color. In young specimens the leaves are almost orbicular and undivided, with exception of a few slight indentations at the edges. The petiole is slender, as long or longer than the blade. The color is a very fine dark green. Seeds for propagation are almost as easy to obtain as those of Livistona or Areca, and they germinate quite as freely. The only drawback to its general cultivation is the fact that it is very liable to the attack of thrips and red spider, especially while it is small. Frequent sprayings with well-diluted insecticides and a moist and warm atmosphere will, however, effectually prevent these pests from doing any serious injury. Large plants are less subject to them; a healthy condition and a rapid growth are the best safeguards against their attacks.

Martinezia caryotæfolia.—In general appearance this fine Palm somewhat resembles the Fish-tail Palm (Caryota). It is a very spiny plant with almost erect leaves from three to six feet in length, pinnate, with the pinnæ disposed in clusters of two or three at irregular intervals. The rhachis is very slender, protected with long black spines. The leaves are sheathing at the base and very spiny; pinnæ cuneate, eight to twelve inches long and about half as broad, præmorse; bright green above, grayish beneath, with an occasional spine here and there on the lower surface. This is a strong healthy species well worthy of culture. It is not subject to insects or diseases, but will do well with very moderate care. The soil should be rich and the pots must be carefully drained. It enjoys a half-shady position.

Newark, N. J. *N. J. Rose.*

A Few Novelties.

Scabiosa Caucasica alba.—This is one of the most recent novelties sent us for trial, and it is a white counterpart of the type. It is white, too, without any shading of blue in the flower, but it is in no way an improvement on the original. The principal charm of the older plant is its rare shade of lavender-blue and its free-flowering propensity, but the white variety seems to lack vigor as well as color, and it is a question if it ever becomes popular.

Saintpaulia ionantha.—It is not often that we are privileged to try a genuine new plant that has so few characteristics in common with others in cultivation, and we are much pleased with this pretty little Gesneriad from South Africa. That it is new is evinced by the fact that a new genus had to be made for it, there being no other into which it would fit, and the name, contrary to expectations, seems as if it will stand the test of time; it is made to commemorate Monsieur de St. Paul Hillaire, who sent it from South Africa to his father, who later distributed it. Our plants were raised from seed sown early last year, and we obtained about fifty plants from a packet. The seeds are small, similar to those of the Gloxinia, and require the same treatment after sowing. We started to treat the plants similarly when growing, but soon found that they liked a cool house with shade from strong sunshine, and when they were moved into four-inch pots they began to bloom about July, and have continued to do so ever since without intermission. The foliage is at times almost hidden by the quantities of pretty violet-blue blossoms, and there are still no signs of their ceasing. There are no tubers to the Saintpaulia, though we rather expected there would be, on account of the close relationship of the plant to a tuber-bearing family like the Gesneriads. However, this plant will root readily from leaf-cuttings, and, after seed, this seems the most simple way to propagate it.

Spiræa Anthony Waterer.—A colored figure of this novelty was published in the London *Garden* for January, 1894, which showed what an acquisition the plant would be if only the color of the flowers were as good as the plate represented them. Spiræa Anthony Waterer is a sport from S. Bumalda, which is itself a variety of S. Japonica, a dwarf-growing shrubby Japanese species, growing about two feet high and having flat or cymose heads of beautiful deep rose-colored flowers. As I saw these in August last at Mr. Waterer's nursery, where it originated, the color was certainly as good as the colored figure, and there can be no question that we shall soon see it as frequently in gardens as the hardy Hydrangeas when it is better known to planters. It is a sport, or bud variation, and was shown first in 1891 and received an award of merit under the name of Beauty of Knap Hill, but later, in 1893, under the above name, it received the additional honor of a first-class certificate from the highest horticultural tribunal in England, and if the color stands the hot sun here and keeps as bright as it does in the gardens of the introducer, it will be a valuable flowering shrub for July, August and September, for it has an extended flowering period. [Spiræa Anthony Waterer flowered this year for the first time in the United States. See page 315 of the current volume.—ED.]

Weigelia Eva Rathke.—This may be described as a perpetual-flowering Weigelia, producing clusters of bright cherry-red flowers with more or less profusion all through the summer. I saw it in August with quite a show of bloom, and shrubs that flower at that time are not common, but there was a reasonable promise of bloom for the rest of the summer, to judge from the unopened buds, and I was assured that it was as good as its raisers claimed in this respect.

South Lancaster, Mass. *E. O. Orpet.*

Oncidium varicosum Rogersii.—When this fine plant can be had the ordinary type does not seem worth retaining. The flowers of Rogers' variety are quite two inches in diameter across the lip. They are of a beautiful deep golden-yellow, with brownish spots on the petals. With its long stem and broad spreading panicle of beautiful flowers it is one of the most charming of Orchids, and seems to thrive under ordinary greenhouse conditions, providing, of course, the atmosphere is kept fairly moist. My belief is that any Orchid which proves satisfactory in my greenhouse under my care is likely to do well with the average amateur, and I am, therefore, inclined to commend this one even to beginners. My experience with Orchids has been rather limited, but I am quite certain that the amateur will be likely to find much interest and probable success with any of the cool-house species, and he is quite likely to meet with success with even such things as Cattleya citrina and C. Dowiana and others which have a reputation for miffiness. These have done better for me than Lycaste Skinneri, which has the reputation of flowering as readily as a Pelargonium. Uncertainty is very certain in the garden.

Elizabeth, N. J. *J. N. G.*

Correspondence.

Is Young Timber Weaker than Old?

To the Editor of GARDEN AND FOREST:

Sir,—The very interesting account by Mr. Dana of the Pinetum Schoberianum, in your issue for November 6th, naturally elicits admiration for a man who, with such singleness of purpose and with such perseverance, could devote his means and attention to experiments on such a large scale for obtaining information that does not bring pecuniary gain to the experimenter. Such action certainly suggests similar attempts to men of means in our country, especially as the instability and constant change in the administrative offices of our Government does not warrant undertakings of such a nature by the Government.

The object of these lines, however, is not so much to bestow praise and commend imitation as to suggest that Mr. Schober is in error about the necessary delay in completing his inquiry regarding the species planted—namely, determining "their power of resistance, their durability and their relative value as fuel." It is stated, that "in order to arrive at this final solution of the problem it is his estimate that at least forty years more will be required."

The notion that young timber is inferior, as far as strength is concerned, to old timber, is one that has held sway so long that it will take a good deal of demonstration and a long time of preaching before it will be eradicated. Nevertheless, it is true that the popular belief is probably as erroneous as was the one that "bled" pine is inferior to "unbled." The extensive tests made by the Division of Forestry have accumulated a large array of data which indicate that this notion is wrong in Pines, and we can see no reason why it should not be wrong with all other kinds of timber. Nay, not only may young timber be stronger than old, but we can assert the still more audacious reversal of the notion that sapwood is weaker than heartwood. Ample ocular demonstration and experiment will be required to establish this fact beyond cavil, but we can even now supply arguments why this fact should be so.

That strength and specific weight in the same species are almost synonyms has been amply proven by our experiments on pine. Specific weight is, of course, dependent on the amount of cell-tissue within a given space, and the greater weight of the cell-tissue is again dependent on the larger amount of cell-wall, and since the darker bands of summer-wood in the annual ring are composed of thick-walled cells (hence the darker color effect) the greater or less amount of summer-wood determines the greater or less weight.

Now, it is well known that the wood-cells formed by the cambium of the tree, when once full grown—that is, at the end of the first season—do not change in size or form; once formed they remain the same in all their mechanical arrangements and relationships, and hence the strength of the particular annual ring remains the same, no matter how many more annual rings are formed around it. We do notice a change when the sapwood changes to heart-wood, but this change does not, as far as we know, involve any change in form or size of cell or cell-wall; it is chemical in its nature, and whether it be infiltration of the cell-wall with chemicals or partial disintegration of the cell-wall itself, it is not conceivable that such change adds to the strength; if anything, it rather detracts from it.

To return, however, to the proposition that the amount of summer-wood in an annual ring determines its strength, and hence the amount or proportion of summer-wood determines the strength of the given piece, we come to the conclusion that the strongest wood is formed when the most summer-wood is formed, which is at the time of thriftiest growth. As a matter of fact, since the growth is a direct function of the amount of foliage, this occurs in most species normally when the crown is best developed, which is usually between the thirtieth year of the tree's life and the eightieth, or ninetieth at most. Hence, if we split up a bolt of a normally grown hundred-year-old Pine into sticks along the radius from centre to periphery, we shall find that the sticks that come from a zone representing the wood of the fortieth to sixtieth year is the strongest, and as we near the periphery or the centre we find the wood, as a rule, decreasing in strength. Hence the trees of Mr. Schober, which have attained the age of fifty years, if properly sub-

jected to experiment, would give as good data as if he waited another forty years.

There is, however, one caution to be observed when experimenting with young wood—that is, with sapwood. This contains always a larger amount of water in the lumen as well as the cell-wall; it shrinks more in drying, and during the process of shrinking, unless carefully dried, it is more liable to develop season checks, which become a source of weakness. It is this greater liability to checking that has probably given rise in part to the experience that sapwood is weaker than heartwood in practice; this weakness is, however, a result of treatment, not an inherent quality of the sapwood as such, and, at least, for purposes of experiment it can be avoided, whatever may be the difficulties in practical use.

This fact, which we hope soon to demonstrate with figures of actual experiments, has an important bearing on our forestry problem; it secures for the despised sapling timber a greater appreciation.

As to durability, we know, to be sure, that sapwood, hence young wood, is more liable to decay because of the food elements contained in it, but the coniferous species under consideration would at fifty years furnish all the heart-wood material needful for experiment, while the fuel value of the dry wood could be determined with as much certainty as from older trees.

Division of Forestry, Washington, D. C. *B. E. Fernow.*

Ornamental Shrubs for Nebraska.

To the Editor of Garden and Forest:

Sir,—Any one interested in ornamental gardening, in visiting the west, cannot fail to notice the extreme dearth of material which both public and home grounds present. A few trees of Cottonwood, Box Elder, Soft Maple, and possibly some others, with here and there a shrub, make up the sum total of ornamental planting ordinarily found. The reasons for this are various, but the condition chiefly arises, no doubt, from the fact that in a new country, as Nebraska is, the people are first concerned with providing themselves with the needful things of life. Æsthetic features come as a secondary and later consideration. The people of a new country are not, as a rule, people of means, and all matters of mere adornment must be at first largely neglected. A second reason lies in the fact that this climate differs widely from the climate of those sections from which most of the people have come, and ornamental plants familiar to them in their old homes often fail utterly here. Nurserymen, too, are much in the dark in this matter. They have been busy providing the more needed varieties of fruit and forest trees, and are often at a loss when asked to recommend trees or shrubs suitable for lawn planting. There are plants that will endure this climate. It is simply a question of finding out what they are. A few well-known shrubs, such as the Lilac, Missouri Currant and the hardier varieties of Spiræa, are known to succeed; but further than this most of us know little.

In order to throw further light upon this question a number of ornamental shrubs were included in the Experiment Station planting the past spring, and the following notes will serve to show something of their probable value as judged at this early date. It should be said, however, that the planting season was unfavorable in that it was followed by a more or less continued period of dry weather, and many plants undoubtedly died which might have survived in more favorable seasons. Furthermore, since this represents but one season's growth we can say nothing yet as to hardiness.

The Sand Cherry promises to prove one of the most satisfactory low-growing shrubs for this climate. Since it is native of the plains it must prove perfectly hardy. Its foliage is bright and attractive, and at date of October 26th, after a number of freezing nights, on some of which the thermometer had fallen below twenty degrees, the plants still presented a fresh and green appearance. Its low-growing habit will render it useful for filling out or banking groups of larger plants. Its fruit also possesses some value. The plants received under the name Improved Dwarf Rocky Mountain Cherry—which are the oldest on our grounds, and identical with the Sand Cherry—have this year shown very attractive autumn tints, a feature which few plants possess in this climate.

The Amour Tamarix seems to be one of the most useful shrubs for our climate, judging from the plants on our own grounds and older ones seen at other places. Those set at the station grounds last spring have thrown up many shoots from the roots, and now form attractive shrubs three feet or more high and as many broad. The finely cut feathery foliage still remains green and attractive, being unhurt by frosts which have defoliated many other plants. The twigs of these young plants have a bright reddish color and promise to give good effects in themselves during winter.

Rosa rugosa has made a very satisfactory growth. Its firm rugged foliage is still untouched by frost and presents a very pretty appearance.

Rubus cratægifolius has made a very strong growth, and even at the end of this one season would give very good effects upon the lawn. Its foliage is still attractive, and, like the Sand Cherry, it is showing some good autumn coloring. From present knowledge these two and the Sumach are all that can be recommended for this purpose. The leaves of most of our trees give but a yellow and sickly appearance, instead of the bright and gorgeous colors so often seen in the woodlands of the east.

The Button-bush has made a good growth, and, notwithstanding its very recent advent from the east, where it was purchased, has been a pretty sight during the whole summer. The leaves are now all killed, though many are still clinging to the plant. It has done its duty well during the summer, but evidently succumbs to the first frosts of autumn. Whether it will stand our winters yet remains to be seen.

Among those which have made a fair growth during the season the following may be mentioned: The Russian Oak, Lonicera media, L. Germanica, L. splendens, Acer Tartaricum, var. Ginnala, Caragana arborescens, Russian Philadelphus, the Tree Cranberry, Purple Fringe, Purple Wistaria, Berberis Amurensis, Pyrus Toringo, Russian Hop-tree, Rubus laciniatus, Viburnum Lentago, V. dentatum, V. cassinoides, Double-flowered Deutzia, Deutzia gracilis, American Evonymus.

Those which have died or made a poor growth are: Potentilla fruticosa, Ampelopsis Veitchii, Pawpaw, Chinese Barberry, Berberis Fisheri, B. laxiflora, Viburnum acerifolium, V. nudum, V. lantanoides, Clematis Jackmanni, the Beech Plum and Rubus spectabilis.

Agricultural College, Lincoln, Neb. *Fred W. Card.*

Exhibitions.

Autumn Flower Show in Chicago.

At the annual fall exhibition of the Horticultural Society of Chicago last week, Chrysanthemums naturally were the chief attraction. Cut flowers predominated, and the white variety which received the award for the best vase of forty blooms was the Mayflower, shown by Stollery Brothers, Argyle Park, Illinois. The large, fluffy flowers are of the Japanese incurved form, the petals somewhat wavy-twisted, the lower ones reflexed. The flower has many good qualities, and it has already become one of the leading market sorts, but in the opinion of many persons for commercial use it did not equal Mr. Buckbee's Mrs. Henry Robinson, which stood second in the same class, but first when competing in a vase of six. The flowers are not as broad and open as those of Mayflower, but they are deeper, the broad incurved petals sufficiently compact to round up into a neat head. In this respect it was one of the most desirable white flowers shown and may take a place among the very best of the early sorts, ranking with Ivory and the Queen. Niveum, which two or three years ago gained much favor, appeared in limited number and holds its own well. Some of the flowers were of the very best form and of immaculate whiteness. Mrs. Perrin, a new pink, incurved, shown by E. G. Hill & Co., was easily the first of this color in a vase of forty blooms; while Yellow Queen, exhibited by Pohlman Brothers, Morton Grove, and H. L. Sunderbruch, by Buckbee, led in their color—the latter, with its large open flowers of a rich, shining yellow, being specially good. Peter Henderson & Co. sent several vases of the Pompon or Chusan Daisy-flowered kinds, to which one would at times resort for the relief they afforded when contrasted with the large-flowered kinds and their bewilderment of names. But a tiny flower like the old Model of Perfection is a gem in itself, and more enjoyable in its completeness than some of its big, disheveled congeners.

The display of specimen and standard plants was not as large as usual. Most of them came from Vaughan & Co. and from the garden of Martin A. Ryerson. Of the specimen plants, one of Constellation, covered with good-sized flowers of a delicate pink, was noteworthy, and quite as good was one of The Bard, a very rich, dark crimson flower, one of the best of its color, which is as deep as that of Cullingfordi (which I did not observe at all in the exhibit), and better than George W. Childs, since the flowers are without the traces of bronze or yellow apt to be seen in the latter too prominently in some stages of its anthesis.

There were the usual eccentricities in the way of grafted plants and those with stems intertwined. On the same stock were the Mutual Friend and The Bard, white and crimson. More pleasing were William R. Smith, a pink, and The Bard. Some neat effects may be produced in this way when harmony of color and form is secured, but to make such treatment most effective those who arrange colors need to bear in mind a principle of optics long ago enunciated by Thomas Young, that the colors which produce the most agreeable effect when placed beside each other are those which approach nearest to white when combined.

Of the tested seedlings, the most approved, Mrs. W. C. Egan, came from Fred Dorner & Sons, Lafayette, Indiana, and obtained the silver medal. It opens as a light pink, and changes gradually from the centre outward to a light creamy yellow. Some of the oldest heads looked almost white. They are semi-compact, flattened hemispherical and six to eight inches across. It is of the exhibition type, with broad incurved petals, and of fairly good form as an ideal Chrysanthemum. Its keeping properties will commend it to florists, for a label stated that the oldest flower had been cut two weeks before, and it was still looking fresh and had but a trace of brown on the edges of some of the lower petals.

The exhibit, as a whole, showed a tendency to breed and cultivate the more compact or even ball-like forms instead of the wider or more open heads, which give to the Chrysanthemum one of its most distinctive characteristics. As one expressed it, they are too Dahlia-like. It is the commercial or transporting qualities which are in the ascendant. This is commendable from the florist's point of view, for he must make the most of his investment. But it is a question how far the artistic should give way to utilitarian features. No doubt, the bizarre, unkempt heads offend by excessive irregularity; it is well to shun, on the other hand, those in which each petal looks as though it had been combed into its place and all irregularities clipped off with shears.

The largest contribution of Carnations came from H. Weber & Sons, Oakland, Maryland, but they were too late to be entered for competition. They were exceptionally well-grown plants, some of them introductions of 1895. Several seedlings, tested and first year, were entered for competition. The one taking the prize was from F. Dorner & Son, a tested seedling, Mrs. George M. Bradt. It is similar to Helen Keller, the red flakes broader and more showy, but not flushing. Some of the blooms slightly exceeded three inches in diameter. The calyx was not as deep as in some varieties, but about like that of Helen Keller, of strength enough to hold the petals firmly.

One of our native plants was shown, the Blue Violet. There were single and double flowered forms. The latter, when the petals were much multiplied, could hardly be considered an improvement. It was interesting to compare them with their field representatives. The flowers were of a deep purple-blue. The leaves had gained in thickness, and were of a rich green color. They were of two types, broad-leaved, as in the Cucullate Violet, and a longer form so heart-shaped as to suggest a derivation from cordate-leaved forms of Viola sagittata. They showed how soon cultivation may change species so as to make it difficult to determine their parentage.

The usual display was made of decorative plants, like Palms, Orchids, Nepenthes, etc., and one Stag-horn Fern which deserves mention. This specimen came originally from the World's Fair collection, and was shown by the gardener of George M. Pullman. It had grown considerably, being now about four feet across, and was a splendid example of what can be made of this Australasian species, Platycerium alcicorne.

Chicago, Ill. *E. J. H.*

American Institute Chrysanthemum Show.

THE flower show provided by the American Institute last week was an excellent illustration of the fact that the interest of such an occasion does not depend upon mere size. The hall of the Institute is only of moderate size, but the collection included flowers which represent the choicest varieties of the season raised by the best growers of this section. Since there were no money prizes the stranger might have wondered what inducements led growers to send their newest and best flowers to a small exhibition in a comparatively out-of-the-way place; but the reason was plain when one saw the class of visitors. These seemed all to be not only devoted, but intelligent and discriminating, lovers of flowers, and the growers of Roses, Chrysanthemums and Carnations had sent the products of their highest skill where they knew they would be properly appreciated. While the judges were passing judgment on the flowers, Dr. Hexamer, in an adjoining room, presided over an animated symposium on the Chrysanthemum, in which brief addresses were made by H. W. Hales, of Ridgewood, New York; C. L. Allen, of Floral Park, New York; Leonard Barron, editor of *The Florists' Exchange*, and Mr. J. N. Gerard, of Elizabeth, New Jersey. Mr. Hales' address gave an account of the introduction of the Chrysanthemum from the east, and advocated the more extensive growing of Pompon varieties. Mr. Gerard advocated the growing of outdoor plants. Mr. Allen said that in old Long Island places there were many very hardy varieties growing, and one of the most interesting floral spectacles of the year was the masses of these plants in late October. He advised a thick mulch of tobacco-stems and situations where no water could settle at the roots of the plants. Mr. Barron gave a lecture on the geographical distribution of the Chrysanthemum in Asia, explaining that the so-called Japanese and Chinese forms were only different divisions of the same family. Mr. Barron exhibited some beautiful varieties of Pompons grown by himself.

It is hardly worth while to specify particular flowers or varieties at the exhibition where all were of such even finish and purity of color. The admiration attracted by Mr. Spaulding's seventy-two blooms on boards proves that there is more than one satisfactory way of exhibiting flowers, and that while single blooms in small vases and great masses of flowers in large ones are certainly valuable, nevertheless the old way is useful as a supplement to the modern plan of showing the stems and foliage. There was not room for a large display of plants, but specimens of William H. Lincoln and Cullingfordii by Mr. A. M. Flagler, of Mamaroneck, New York (W. Cowen, gardener), were both worthy of mention in a good collection of twenty-one plants. Cultural certificates were awarded to Jos. E. Brown, Esq., for vases of twenty-four and of twelve blooms, and for twenty-four vases with fifteen blooms each. George H. Hale, of Bellport, Long Island, grew these fine exhibits, and there was not a poor bloom in the entire lot. Iora, the broad-petaled English variety Rose Wynne, Mrs. W. A. Bryant, a riotous yellow, Niveum, the bronze Charles Davis and Mrs. A. J. Drexel, and unusually good blooms of Pitcher & Manda were among the stars of this constellation. In the exhibit of fifty single blooms, and in sixteen vases of twelve blooms each, for which Dailledouze Brothers received a well-merited certificate, G. W. Childs, Major Bonnaffon, Dean Hole, Viviand Morel, Colonel W. B. Smith and the large yellow Georgiana Bramhall were conspicuous, while Eugene Dailledouze, Ivory and President Smith were probably the best in the seven vases exhibited by Mr. John Lewis Childs, a collection which also won a cultural certificate. Twelve flowers of Golden Wedding, exhibited by Messrs. Garrett & Rose, of Jersey City, and enormous blooms of Mrs. Jerome Jones, Philadelphia and Mayflower, exhibited by John N. May, were also features among the cut Chrysanthemums. A well-deserved certificate was given to Mr. Leonard Barron for an assortment of hardy Pompons, which showed how it is possible to decorate the outdoor garden in this climate in early November. Pitcher & Manda also displayed thirty varieties of Pompon Chrysanthemums, which were well worthy of the attention they received. For seedlings the awards were given to Mr. Spaulding for his pure white Japanese Chrysanthemum, Mrs. W. P. Raymond, and to Mr. John N. May for the new fancy Carnation, Lily Dean, a flesh-white flower delicately margined with pink. The salmon-pink Carnation, Fred Weir, was also certificated; this is a fragrant self-colored flower of good size, shown by Dailledouze Brothers. A vase of Bridesmaid, Mr. Dorner's new variety, made a striking show. These Carnations were exhibited by Mr. C. W. Ward, Queens, Long Island, and showed successful cultivation. The color is a brilliant pink, deeper than that of William Scott. The same grower also made a good display of Meteors.

Notes.

An interesting exhibition of Palms, Orchids and tropical plants by William A. Manda is now in progress at the Grand Central Palace, and will continue until the first of December.

A week ago the committee of the New York Florists' Club, acting for the National Chrysanthemum Society, awarded a certificate to one out of four varieties on exhibition. This was shown by Mr. T. H. Spaulding, and was named Golden Wonder. The flower is a deep yellow, with a centre of still deeper orange color, fading toward the tips to a sulphur-yellow.

In an editorial note of this issue the tenderness of the leaves of the Japanese Maple is spoken of. Much of the foliage of these trees was killed this year by severe early frosts before it

began to turn, but one of the oldest trees of this species in the country, standing in a sheltered position in Prospect Park, Brooklyn, still retains a large portion of its leaves in the latter half of November, which fairly glow in the sunshine with colors which words cannot describe.

Besides the awards which we have before mentioned in the Forestry Division of the Atlanta Exhibition, a silver medal has since been given to the Argentine Republic for a collection of native woods and plants, and one to the Republic of Mexico for a collection of over two hundred medicinal plants, well arranged and properly labeled. Bronze medals were also given to the state of Zulia, to the Republic of Venezuela and to F. X. Gartland for ornamental woods.

The newest offerings in the fancy-fruit stores are Gros Colman grapes, from Long Island hot-houses, at $1.50 to $2.00 a pound; strawberries, from California, costing sixty cents for a box holding less than a pint of the fruit; prickly pears, from Italy, in considerable demand on account of their decorative value in baskets of fruit, selling for sixty cents a dozen, and pomegranates, from Spain, at the same price. Small lots of peaches, from this state, bring forty cents a dozen.

In the Parisian markets and along the quays, where well-grown plants may be cheaply bought at almost any season, the dealers have potting-soil for sale in baskets containing, say, half a bushel. In this city amateur buyers of plants can buy potting-soil of local florists, but the small dealers, who supply the greater proportion of the plants that are grown in city yards and window gardens, might find it to their own profit, and certainly to the benefit of their customers, to follow this Parisian custom and provide good potting-soil to those who buy their plants.

During the warm days of the past week the delicate little lilac and white flowers of Micromeria rupestris opened as cheerfully as they did in July. Among the low-growing sub-shrubs in the rock-garden few are more valuable than this little Mint, with its long succession of flowers and its neat foliage with the odor and taste of Pennyroyal. Its prostrate stems, which turn up at the extremities, make a rounded mass less than a foot high at the centre, and in old specimens spreading over a diameter of two feet. It is perfectly hardy, and altogether a cheerful and useful little plant.

The lemon famine of six weeks ago, due to the loss of the Florida crop last winter and to the short supply of Mediterranean fruit, made extraordinarily high prices then. The new Sicily crop, which is now arriving, is abundant, and although no lemons are expected from Florida this season, and but few from California, prices are unusually low. The California lemon crop of the approaching season is estimated at 250,000 boxes, and the orange crop of the same state at 3,000,000 boxes. Some 3,000,000 boxes, or about 1,000,000,000 lemons, are consumed in the United States in a year.

During last week 34,415 barrels of apples came into the markets of this city, making a total of 309,752 barrels since September 1st, and 70,925 barrels more than arrived here during the same period of last year. After Albemarle Pippins, which are mainly exported, Snow or Fameuse apples of fancy grades bring the highest prices of all the varieties now in season. Northern Spy ranks next, and King and Wine-sap follow in the scale. One of the showiest apples occasionally seen in choice collections is York Imperial, or Johnson's Fine Winter, as it is known in the trade. Selected specimens of this fruit are of large size, flat, the clear yellow ground well covered with bright red markings in which distinct white dots occur.

Experiments in grafting Tomato cions on Potato stocks, as well as Potato cions on Tomato stocks, have often been carried on in this country. Of course, in the latter case, the Tomato roots do not produce potatoes, but the Tomato grafts may bear Potato flowers and seed. In a lecture on Potatoes, delivered before the Royal Horticultural Society lately, Mr. A. Sutton spoke of a Potato-plant grafted on a Tomato, in which the plant, after having produced a truss of flowers and several berries, seemed to have determined that it was its peculiar duty to produce tubers, and, therefore, several of these were started from the axils of the leaves. A picture of this plant showed half a dozen good-sized tubers growing along the stem.

Campbell's Early Grape, a seedling of Moore's Early, which is in turn a seedling of Concord, promises to be one of the leading competitors of that old and standard variety. A correspondent of *The Agriculturist* describes the new grape as earlier than Moore's Early, with no tendency to shell off from the stem, so that it can remain on the vine weeks after it ripens. It has no foxiness, and the sprightly flavor is superior to that of the Concord. Its leaves are thicker than those of the Concord, and its growth is strong; the skin is thin but tenacious, the pulp is sweet from skin to centre and the seeds part from it readily.

The first exhibition of the recently organized Horticultural Society, held last week at Northampton, Massachusetts, was an encouraging success. Many Chrysanthemums were shown, mainly by Mr. E. P. Copeland, President of the Society, and noteworthy exhibits were a collection of decorative plants, most effectively arranged, from the greenhouses of Mr. E. H. R. Lyman (D. MacGregor, gardener); Chrysanthemums and cut flowers from the Hospital (J. W. Thornley, gardener); plants of educational interest from the Botanic Garden of Smith College (E. J. Canning, gardener). Of the florists' exhibits the most extensive were those of Mrs. Mann and A. Parks, while several other florists displayed good plants or collections of flowers.

Raupenleim is a preparation long known in Germany, where it has been used to protect trees from injury by caterpillars of the nun moth and other insects, and to some extent to prevent the winter-barking of trees by deer; it has also been used experimentally by the gypsy-moth commission of Massachusetts. Since this insect-lime or insect-glue is comparatively expensive, Professor Nason, of New Brunswick, New Jersey, at the request of Professor Smith, the entomologist of the station there, has obtained as the results of some experiments a substance sufficiently similar to it to warrant comparative tests. The new product is called Dendrolene, and Professor Smith gives an account of tests made with these substances, both of which are crude petroleum products which resist heat to a considerable extent and remain sufficiently viscid at ordinary temperatures, so that they do not flow and never become soft enough to run much in the sun. They can be applied to trees with a paddle or trowel and distributed by a stiff brush. When the entire surface of the trees is covered with either of these products the buds will not develop, but where trees are covered from the surface of the ground to the buds and the buds are left free there seems to be no difference in the amount of foliage or the health of the tree. A thin application of either will last six weeks, and an application a quarter of an inch thick has lasted five months in good condition. After a time, however, the German product becomes so hard that a light, rapidly moving insect can move over it, although where it was put on thick enough it was still soft enough to hold any creature that ventured upon it at the end of six weeks. The Dendrolene loses some of its sticky character in that time, but it continues to have a greasy surface and remains a perfect barrier against insects which attempt to cross it. The material can be employed for a variety of purposes, as, for example, against scale insects. If the trunks and larger branches of trees are covered the application will prevent the emergence of the young from beneath the parent scales. Spread over the trunks of Peach-trees early in the season it will prevent oviposition by the Peach-tree borer. This is a satisfactory way of preventing injury to Peach, Apple, Quince and Pear trees from the attacks of either the round or flat-headed borer. Applied from the middle to the latter part of May to the trunks of trees after the loose bark is scraped off, it forms a surface that no insect can light upon or can remain upon without being killed, and one that no young larvæ can penetrate. For this purpose the Raupenleim would, perhaps, be better from its tendency to become hard, and where insects are actually in the tree none of them could emerge through the barrier. The dendrolene will probably answer every purpose if put on a little heavier. Where the cankerworm is troublesome a band of either substance a foot wide and half an inch thick on the trunk below the point of branching would prevent either the male or female caterpillar from crossing, and it would remain intact until the attack is over. Where shade or fruit trees have been cleared of eggs during the preceding winter it would be a barrier against the vaporer-moth and the bag-worm, and also against the plant-lice which crawl up the tree-trunks in the spring and down again in the fall. A thorough application would prevent the emergence of the Pear psylla, and an application made on Apple-trees before they are in blossom would prevent the emergence of any codling-moths that may be in the pupa state beneath it. Altogether, the range of usefulness of these substances is very wide, and a coat of dendrolene might be a perfect protection during the winter when mice, hares and other animals gnaw the bark.